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W A S H I N G T O N, D.C.

OBSERVATIONS AND EXPERIMENTS

ON THE USE OF

ENEMATA,

AND

THE EXTERNAL APPLICATION OF MEDICINES TO
THE HUMAN BODY;

BEING AN

INAUGURAL THESIS,

SUBMITTED TO THE EXAMINATION OF

THE

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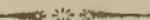
On the 22d day of May, 1798,

FOR THE DEGREE OF DOCTOR OF MEDICINE.

—
BY JOHN HAHN,

OF PENNSYLVANIA,

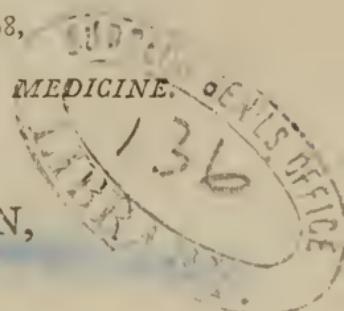
Honorary Member of the Philadelphia Medical and Chemical
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TO

CASPAR WISTAR, M. D.

ADJUNCT PROFESSOR OF ANATOMY, SURGERY, AND
MIDWIFERY,

IN THE

UNIVERSITY OF PENNSYLVANIA;

THIS

DISSERTATION IS DEDICATED,

AS A SMALL TRIBUTE OF RESPECT, FOR THE
MANY ADVANTAGES AND ATTENTIONS
RECEIVED DURING THE STUDIES OF
HIS FRIEND AND PUPIL,

The AUTHOR.

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OBSERVATIONS AND EXPERIMENTS

ON THE USE OF

ENEMATA, &c.

AT the commencement of an Essay upon a subject in which the Lymphatic Vessels are particularly concerned, it may not be improper to give a general view of that system; this I shall do in as concise a manner as possible.

CHAPTER I.

Of the Absorbent System.

THAT process in the Animal Body which is called Absorption, is performed by a set of vessels peculiarly appropriated to the purpose, and not as the ancients supposed by the veins: the vessels performing this function, are at present known by two names; those situated in the abdomen, and passing immediately from the intestines, have, from their

carrying the fluid called chyle, which somewhat resembles milk, been called lacteals. Those absorbents which originate from the external surface, and other parts of the body, have been denominated Lymphatics; although these vessels have been distinguished by different names, they are the same in their structure and functions.

The lymphatics equal the arteries in their minute and universal distribution; there is no part of the animal body, be it ever so small or ever so remotely situated, without the power of absorption. We may apply a fluid to any part of the external surface, and it will be absorbed; the innumerable examples afforded us by the absorption of the water of dropsy, of matter from internal ulcers and cavities, and also of the most solid parts, in every situation, proves not only the universal distribution, but likewise the great power of this function in the animal œconomy. There is, we may safely say, no power in the animal machine more necessary to its existence than absorption: it is commonly said that we cannot exist without the circulation, or the nervous influence exerted on the body; we may with the same propriety say that an animal cannot exist without the power of absorption; for if the performance of this function was wanting, circulation would soon cease, and without the action of the heart and arteries the powers of the brain would immediately be destroyed.

The lymphatic vessels are in general so small, that their mouths opening on the different surfaces cannot

be seen by the naked eye ; this minute size has prevented their structure from being so much unravelled as that of the arteries and veins ; it is however certain that they resemble them in some respects.

Several experiments and observations have been made in proof of the muscularity of the absorbent vessels. Nuck and Cruikshank have both seen and demonstrated fibres in the thoracic duct of horses ; the latter of these gentlemen observes, that he has seen fibres in a human thoracic duct. These observations prove that the great lymphatic duct, and perhaps some of the larger branches of these vessels have fibres, but every substance that is fibrous cannot with propriety be said to be muscular. The best test we have of muscularity, says Mr. Cruikshank, "is the disposition in a part to contract on the application of stimuli ;" this our author found to be the case with the absorbents, and it generally has been concluded, from these and other observations, that lymphatics are muscular.

That lymphatics have considerable strength, even in the dead body, appears from their supporting no small weight when injected with mercury ; I have seen a large number of vessels situated on the leg and thigh suspended by a few branches when all were injected with that fluid.

With regard to the sensibility and vascularity of lymphatics little doubt remains ; analogical reasoning would lead us to conclude that they possess both nerves and blood vessels, and in addition to this,

experiment and accidental occurrences prove the same thing.

The sensibility of lymphatics is sufficiently demonstrated by their taking on a preternatural action upon the application of a strong stimulus. Absorbents have not unfrequently been seen in a state of inflammation, after some active poison has been circulating in them; from our present knowledge and theory of inflammation, we conclude that it cannot take place where there are no vessels, this then I trust may be considered as a sufficient test of the vascularity of lymphatics.

Absorbent vessels, like veins, are furnished with valves, which in some parts are so numerous, that half a dozen may be met with in a portion of the vessel not more than an inch in length; these valves are so formed and situated that they admirably prevent a retrograde direction of the fluid passing in their respective vessels; their figure is semilunar, they are placed in pairs, one opposite the other, with their convex edges attached to the vessel, and they play like moveable partitions; when the fluid passes in a natural direction they lay close against the sides of the vessel; on the contrary, when the fluid is forced in a retrograde course, their loose edges leave the sides of the vessel, meet each other in the middle, and thus prevent any further progress of it. Valves, such as have been described, are uniformly situated at the entrance of the absorbent vessels into the thoracic duct, and where this great reservoir of the lymphatic fluid joins the left subclavian vein.

The manner in which the absorbents take up fluids from the surfaces of the body remains as yet undetermined by Physiologists; on this difficult question I shall not presume to decide, but leave it for abler minds than mine to determine. After the fluid has entered the vessel a short distance, its motion depends upon causes similar to those of the motion of the blood in the veins, viz. partly upon the pressure received from the contracted muscles and pulsating arteries, and partly upon the action of the lymyhatic vessels themselves. Here the great use of the valves in these vessels is made evident; when the vessel is pressed by the swelling of the adjacent muscles in a state of contraction, if it were not for these valves, the fluid would as readily take on a retrograde, as a forward direction, but with this provision it must pursue a natural course.

Absorbents, like veins, run from the circumference towards the centre; they originate from every part of the body, pass in every direction, frequently anastomosing and forming net-works, and lastly, are collected in one great trunk called the thoracic duct; this enters into the left subclavian vein; sometimes there are two ducts, one entering into the left, the other into the right subclavian.

The lymphatic glands are numerous, and variously distributed: we find them most abundant, in the groins, axillæ, the mesentary, and about the root of the lungs. After a long investigation of the structure and nature of these glands, by many different anatomists, little more of their use is known now than at

their first discovery ; although we know so little of their functions, there can be no doubt but that they are a necessary appendage to the lymphatic system, and the discovery of their use in the animal œconomy may one day or other throw great light on some discoveries, with which we are at present but little acquainted.

After having thus briefly considered the structure, distribution, and course of the lymphatic vessels, I am led to make a few observations on their use in supporting animal life.

The food of animals, after it is received into the stomach and intestines, is subjected to the process of digestion, and the nutritive parts thereof are converted into chyle. It is the office of the absorbents of the intestines or lacteals to convey the chyle thus formed into the general circulation. But this is not the only office of the lymphatics ; in case no aliment is taken into the stomach, or when food taken in is not digested, in short, where no chyle is formed in the alimentary canal, be it from whatever cause, they can support life for some time by absorbing from the atmosphere, from the adipose membrane, or from any part where they meet a fluid proper for entering the general circulation. Hibernating animals afford a striking example of the last mentioned power of the absorbents. The bear when he enters his cave in the autumn, is loaded with adeps, he ceases to eat, no more chyle is formed in his alimentary canal, the lymphatics now begin to devour the fat which had been stored up during the summer ; in this manner

he lives as it were upon his own flesh during the whole winter.

The lymphatic vessels are not equally distributed through every part of the body, some parts are endowed with a number far greater than others. The small intestines from their being the natural organs of nourishment, have perhaps a greater number of absorbents scattered on their surface, than any other equal part of the body. The large intestines are not without the power of absorption, as will appear not only from the case presently to be related, but also from the reports of anatomists. For example: In Fleming's Physiology, p. 249, we find the following dissection quoted from Dr. Swenke: "A soldier was killed by a musket shot soon after eating a plentiful meal, the bullet destroyed the clavicle with the vessels under it, whereby the thoracic duct, near its insertion into the left subclavian was compressed, and the passage of chyle through it stopped. Upon opening the dead body, innumerable lacteals appeared through the whole extent of the colon, to its termination in the pelvis;" from this he very properly inferred the utility of nutritive enemata.

The descriptions of the lymphatics of the large intestines which are to be found in the works of those accurate investigators, Mascagni and Cruikshank, confirm this account of Dr. Swenke.

CHAPTER II.

*Of the Absorbing Power of the great Intestines, and
the consequent Utility of Enemata.*

FROM the anatomical structure of the large intestines, we might conclude that they possessed great powers of absorption, but the following facts are directly in proof of it, and show the great advantages to be derived from nutritive injections into these intestines, in cases of starvation from whatever cause.

The first case to be related is one that came under my immediate inspection.

John Fisher, aged 21 years, was admitted a patient in the Alms-House, with a protracted inflammatory fever, for which he took powders of nitre and calomel; in a few days his mouth was affected by the mercury, and in consequence of a sudden application of cold, his parotid glands, neck, and face, became so much swelled, that he was unable to take in any solid food; in this situation he lived two days upon tea and molasses and water, but by the end of two days his mouth and throat were so completely

closed that he was unable to swallow any fluid. The poor man had in this time become so much debilitated, from the want of nourishment and the long continuance of his disease, that he could not sit up in bed. At this critical moment, when every person about him expected he would breath his last in a few hours, nutritive clysters were directed to be given, and about half a pint of strong beef tea with a few drops of laudanum was injected every four or five hours. In twenty four hours after the first enema a great alteration was evident, his pulse rose, and he appeared to have gained strength, being able now to raise himself up in bed. By a repetition of the injections, three or four times in the day and nearly as often during the night, he was supported during nine days without receiving into his stomach a single ounce of solid or fluid nourishment, a small quantity of tea on the ninth day excepted; on the tenth day he swallowed a quantity sufficient to support himself by means of the stomach. Both the mind and body of this poor patient were improved during these nine days, and by proper treatment after the omission of the enemata he perfectly recovered his health.

In the third volume of the London Medical Observations, page 245, John Silvester relates a case of which the following is a short extract. A girl under the effects of mercury got out of bed when very warm, and took a hearty drink of red wine, this immediately stopped the salivation, and produced an uneasiness in the stomach; in a week after a vomiting came on, which in a few days became incessant, so that she threw up whatever was taken the moment

it reached the stomach. In this situation she continued two months, before application was made to the hospital; at this late period of her disease admittance as a patient was granted her. She was once bled, vomits, cordials, stomachics, &c. were all administered without the least alteration of disease. She was now, from debility, scarcely able to walk or stand: at this critical moment it was thought advisable by her physicians to direct nutritive enemata, and to prohibit her from taking any thing whatever into her stomach; an injection of a pint of strong mutton broth with the yolk of an egg dissolved in it, was given twice a-day. The effects of these clysters, and abstinence from eating, were, that she immediately ceased to vomit, and in a few days, her spirits grew better, her strength increased, and her flesh grew firmer. After the injections had been continued for a fortnight, during which time she neither eat nor vomited, permission was granted her to take a spoonful of broth, this soon convinced the unfortunate patient that she remained in the same unhappy situation; the enemata were therefore continued, (I am sorry our author does not mention for how long a time) and some medicines were likewise administered by way of clyster, but all without the least mitigation of the complaint, for it was at last removed by reproducing a salivation. During the whole of her disease, not excepting the time when the injections were given, she had no discharge downwards from the alimentary canal.

In the second volume of the Edinburgh Medical Essays, page 382, we find a very remarkable case

recorded by James Eccles, of which I take the liberty to draw up the following abridgment. A young woman about sixteen had her menstrual discharge obstructed; this was attended with epileptic fits, occurring every month at the time when the menses ought to have made their appearance. With a view to remove these affections, she was bled and vomited; soon after the operation of the second vomit she was seized with a difficulty of swallowing, which in two or three days increased so much in violence, that she was unable to swallow, but on every attempt, fell into a fit, attended with prodigious tremblings and alternate distentions of the thorax and abdomen, which sometimes continued half an hour, and always ended in a rigidity of the whole body. She continued without eating or drinking from the middle of May to the fifteenth of June, a period of thirty-four days, when she again attempted to swallow, but with the same bad consequences. Antispasmodic and nervous medicines were now applied externally to the neck but without effect. The probang was next resorted to, and was with difficulty forced into the stomach; but the operation gave temporary relief, for she was able without much difficulty to swallow for three weeks. By the middle of July the spasm had returned with so much violence that the poor girl was again unable to swallow, and she continued fifty-four days longer without eating or drinking. During the first course of fasting, and the first thirty* days of the second course, she was nourished by Enemata of broth, sherry wine, and the yolk of eggs. Our author observes that this unfortunate patient declared she

suffered neither hunger nor thirst during all the time of her fasting, that she had lost but little of her flesh, and that her pulse was full, strong, and equal.

The fourth case that I shall lay before the reader, is one that my worthy preceptor, Dr. Wistar, favoured me with ; I shall relate it in his own words.

" The patient was upwards of sixty years of age, and very sedentary in her habits. The disease appeared to be simple dyspepsia, but was aggravated instead of being relieved, by the ordinary remedies for that complaint, and finally it increased to such a degree, that she vomited every thing she swallowed, and was affected with an incessant nausea ; debility increased in consequence of these symptoms so much that she was unable to sit up. Enemata with a dram of tinct. thebaic. in each, were injected to relieve the nausea, and they produced this effect, but did not enable the stomach to retain what was swallowed. To compensate for the want of aliment in the stomach, the enemata were composed of about eight ounces of mutton or beef broth added to the tinct. thebaic. and they were retained a long time. As the disease continued, the enemata, thus composed, were injected daily. The bowels being extremely inactive, an injection slightly stimulating was previously administered, and generally produced the discharge of a small quantity of black coloured liquid fœces ; an hour after these came away the anodyne nutritive injection

“ was exhibited, and was generally retained until
“ the stimulating injection was used next day, which
“ was about twenty-two hours afterwards. While
“ the injection was retained she lay quiet, and was
“ not much affected with nausea, unless she attempt-
“ ed to eat or drink, but immediately after swallow-
“ ing any thing, vomiting came on, and it was
“ computed by her attendants that she always
“ vomited much more than she swallowed; the
“ matter discharged appeared to be the aliment
“ recently taken, mixed with the gastric fluids and
“ mucus. In this state, vomiting more than she
“ swallowed, she continued upwards of six weeks,
“ when the nausea went off gradually, and her
“ appetite and power of retaining food returned;
“ with this also returned her strength, which
“ increased to a degree greater than usual, and
“ continued several years, when similar complaints
“ returned, while she was in the country, where
“ the enemata could not be administered; she died
“ after a lingering illness, during which she fre-
“ quently expressed her wishes for her former
“ remedy.”

I am sorry that my experience as a student has not afforded me more facts of a similar nature, but I flatter myself that the preceding cases, though few in number, are sufficient to convince any mind of the great power of absorption in the colon, and of the great utility of nutritive enemata in cases of disease in the digestive organs, or in the organs of deglutition.

In every case where a sufficient quantity of food cannot be received into the stomach without the aggravation of disease, when the patient is altogether unable to swallow, or in cases where food received into the stomach is not digested, or is immediately thrown up ; we ought never to neglect giving our patient the opportunity of recovering by these means. Though we cannot always cure the disease, yet we may revive and support our patient until the remedies proper for the cure of his complaint can be employed with advantage. Of the three patients mentioned that were cured, I will venture to say there is not one who would not have died before the remedies, employed to cure the different diseases, could have been effectually administered ; if it had not been for the great assistance they derived from the nutritive enemata.

The last of the four cases is doubly interesting, First, for the length of time the patient was supported by the injections ; and, secondly, for the perfect cure performed by the rest afforded the stomach. This leads me again to recommend the use of nutritive clysters to the practitioner of medicine, under certain circumstances, and in certain diseases ; particularly in violent dyspepsia, which so often baffles the efforts of physicians.

CHAPTER III.

Of the Sympathetic Connections of the Great Intestines.

HITHERTO I have been considering the power of absorption ; my intention now is to offer a few observations, on another important quality of the animal body, by which medicines act on the whole system although applied locally, I mean sympathy. By this term we understand the disposition in one part, to be affected by an application, to another, perhaps remotely situated from it ; for example, an irritation excited in the nose will throw the diaphragm into violent contractions ; irritation at the neck of the bladder, by a stone, produces pain at the glans penis.

Upon what principle, or by what means, this wonderful consent of parts exists, has hitherto been inexplicable, and will remain so until we are better acquainted with the brain and nervous system. The strongest example of sympathy or nervous connection afforded us, exists between the stomach ; and the whole

body ; the connection here is so strong, that a draught of cold water, on a hot summers day, has destroyed life in a few minutes, a blow on the pit of the stomach has induced syncope and even death. It is by means of this great sympathy that many medicines act on the general system when received into the stomach, particularly those of the narcotic and stimulating kind.

That the large intestines resemble the stomach in their sympathetic connection is evident from the similarity of effects, produced by the operation of the same medicines in the stomach and rectum. It has long been known that bark, injected into the rectum, will cure an intermittent, and the daily use of opium, in this way, attended with the same effects as when taken into the stomach, goes far to demonstrate the sympathy that exists between the rectum and general system. The relation of an experiment made on myself, will convince the reader of the powerful effects of opium when received by enema.

At a quarter before 10 o'clock, P. M. pulsebeating 52 * strokes in a minute, I took an injection of 180 drops of laudanum diluted with two ounces of water; in 15 minutes my pulse was the same with regard to frequency, but rather fuller; in 25 minutes it continued the same with a slight giddiness of the head; in 35 minutes it raised to 56, but was smaller and harder; in 45 minutes, pulse 56, the affection of the

* My pulse in health beats 52.

head resembled that sensation which is felt at the approach of intoxication ; 60 minutes, pulse 56, the affection of the head continued ; 70 minutes, pulse 72, small but tense, eyes somewhat turgid, more languor, and much inclined to a recumbent posture : in the next ten minutes my pulse fell from 72 to 60 strokes in a minute, langour much increased. I now resolved to go to bed ; previous to doing this, I discharged what I supposed to be the whole of the injection without any fœces.

At half past eleven o'clock, A. M. I injected seven drams of wine into the rectum of a small dog ; at 12 o'clock, no sensible effects being produced, nor the first injection discharged, I administered seven drams more ; in five minutes after the last injection, he began to move his hind legs with difficulty, and great uncertainty, when attempting to jump he was sure to fall ; in a few minutes more he was scarcely able to walk, falling frequently and running against every thing that came in his way. In fifteen minutes after the last injection, he had a large discharge from the rectum, immediately after which the effects began gradually to disappear.

In this manner I intoxicated the same dog a number of different times.

At several different times I had small quantities of wine injected into my rectum. While under one of these experiments, and the only one at which I examined my pulse, I found it to be raised several strokes in a minute ; but the quantity that I could

retain was too small to produce any very obvious effect while my body and mind were in perfect health ; but I am fully convinced that wine may be injected into the rectum with advantage in cases of great debility. I will here take the liberty of mentioning, in as few words as possible, a case delivered by Dr. Wistar in his course of Lectures on Anatomy, which in a remarkable manner points out the similarity of effects produced in the stomach and rectum by spiritous liquors. The subject of this case was a man much addicted to the use of strong drink, and probably from this cause was tempted to cut his throat, which he one day effected ; while he laboured under the wound, it was with great difficulty that any thing could be swallowed. His physician, the late Dr. Way of this city, whose death is ever to be lamented, directed nutritive enemata, and these answered the purpose of aliment ; but the poor patient soon found that he suffered materially from the want of the diffusible stimulus, and one day, when his wife was about giving him an injection, he desired her to add some ardent spirits to the nutritive matter ; the effect soon convinced him that he derived every benefit from the spirit in this way, that he was accustomed to do when he drank it ; and after this discovery, he did not let a single day pass without taking several doses.

These experiments, in conjunction with daily experience, can leave no doubt of the great advantages to be derived on certain occasions from the administration of medicines, particularly those of a narcotic stimulating quality, by enemata.

I cannot say from experiment, but I think analogy warrants me in so doing, that every medicine, the effects of which are communicated to the general system by the sympathetic connection of the stomach, will have a similar effect when thrown up the rectum provided the dose is proportionably large.

The relative dose for the rectum, has by some been computed to be two thirds larger than that for the stomach, but from experiment I am led to believe that it does not require so much. On comparing the effects of sixty drops of tinct. thebaic. in the stomach, with those produced by one hundred and eighty drops in the rectum, I found that the effects of the latter were something stronger than those of the former. This I think justifies me in concluding, that the relative dose for the rectum does not require to be two thirds larger, but that little more than a double dose will answer the same intentions in the intestines.

Having thus satisfied myself of the sympathetic connection between the rectum and general system; I was induced to try whether any particular sympathy existed between the stomach and large intestines: the mode that struck me as best calculated to ascertain this point, was the injection of emetic medicines; I made a number of experiments with tart. emetic, and several with ipecac. a few of which I shall now proceed to relate.

After having used as much as eight grains of the emetic tart. by enema, without the least affection of

the stomach, I was induced to think that a still larger quantity might produce some effect, and I ventured on taking thirteen grains; this was injected at half past eleven o'clock, A. M. dissolved in two ounces of water, immediately after I had perfectly evacuated my rectum. This on being first thrown up produced some irritation, but it did not continue longer than five minutes. Not the slightest affection of the stomach was observable, from the time it was injected, until it was discharged, which was at ten o'clock, P. M. of the same day. In the act of evacuating, I had some tenesmus, and a little foreness at the verge of the anus, but of this I felt nothing ten minutes after. So inactive was the tart. emetic upon this part, that it did not even excite a discharge of fœces, nor produce the least effect on the general system that was observable.

From the great irritation produced in the rectum by injections of ipecac. I did not venture to increase the dose beyond half a dram; this quantity was administered one afternoon at half past four o'clock, mixed with two ounces of warm water, and was not discharged until nine o'clock, A. M. the next day. In the intermediate time, no effects of any kind were observable either on the stomach or general system, but at four in the afternoon I had another very small discharge, which was attended with considerable straining, and from this time I had almost a continued desire to evacuate from the rectum; in two or three hours went to stool three or four times, and these discharges, though very small, were all attended

with tenesmus; between these evacuations I was not free from uneasiness, but felt a considerable throbbing about the verge of the anus, similar to that experienced in a phlegmon. Would not an injection of this kind serve to bring on the hæmorrhoidal flux?

From the two last mentioned experiments, and several others of a similar nature not related; I conclude that there is no specific connection between the stomach and rectum, and that little can be expected from enemata in exciting the action of the stomach, without it is in consequence of their effect upon the general system.

CHAPTER IV.

On the Application of Medicines to the External Surface.

THE utility to be derived from the application of medicines to different parts of the body, must forcibly strike every mind, upon considering how often we are prevented from applying them with effect through the medium of the alimentary canal by its many diseases ; and the great disposition there is in the different parts of the animal body to become habituated to the action of medicines applied immediately to them. It is a fact well known, that when one part has become accustomed to the action of a medicine, we may apply it to another with every advantage ; for instance, when the stomach, from a long continued use, has become as it were paralytic to the powers of opium, the rectum will receive its impressions as forcibly as though it never had been applied to any part of the body. This fact is further corroborated by a very simple experiment. Any person in the habit of using tobacco, and who has always been accustomed to hold the chew on one

side only, will by removing it to the opposite side of the mouth, experience the same disagreeable effects that he did on his first commencing the use of this plant.

In the preceding pages I have considered the rectum as an advantageous part for the application of nourishment and medicine, when the stomach, mouth, or œsophagus are diseased. In cases where we wish further to assist the operation of medicines in the stomach and rectum, or where both these organs are diseased ; a good opportunity is afforded us by the external surface of the body.

Medicines applied to the skin act on the two principles spoken of, namely, absorption and nervous sympathy. That the first of these powers is seated in the skin, is evident, by essential oils having been tasted in the mouth, a short time after they were rubbed on some part of the skin ; by the external use of terebinthines, by the daily introduction of mercury into the system in this way, and by the absorption of many poisons from the external surface ; the bark, bath, and jacket have also been found of service in intermittents, and these probably act as much through the medium of the nerves as of the absorbents.

In the memoirs of the medical society of London, we find a letter from Mr. Sherwen to Dr. Lettsom on the external absorption of tartar emetic. In this communication the author observes, nausea, great perspiration, gentle purging, an increased flow of

urine, and in one case an eruption with an itching of the skin, as the effects of from five to ten grains (which is the largest dose he there mentions having used) of tart. emet. when absorbed by rubbing it on the hands, and in one instance, on the side and region of the stomach.

It might be thought presumption in me to contradict so respectable an author as Mr. Sherwen; this I will avoid doing, but shall relate some experiments similar to Mr. Sherwen's, with their results, and leave the unprejudiced reader to judge for himself.

At several different times, I rubbed 12 grains of tart. emet. moistened with a small quantity of water into the palms of my hands; this was done in the evening a short time before going to bed. I slept sound as usual all night, without experiencing the least nausea, perspiration, or purgative effects, either during the night or next day, but rose and eat my breakfast with my accustomed good appetite. At my desire, a fellow-graduate repeated the experiment just related, without experiencing any sensible effects from the medicine.

The following experiment was made by a fellow student. At 8 o'clock, P. M. he rubbed 12 grains of tart. emet. with the addition of two drams of water, into the palms of his hands; in half an hour after, the first 12 grains having produced no effects, 12 grains more were administered in the same manner. No effects were observable in three hours

after, when he retired to bed. About six o'clock next morning a moisture of the skin was observable ; this the gentleman was inclined to attribute more to his having slept under an unusual quantity of bed clothes, than to the medicine. No nausea, purging, or eruption followed.

Two scruples of tart. emet. made into a paste with a little water, and kept applied to the pit of the stomach for 12 hours, produced no discoverable operation.

Peter V——, afflicted with chronic rheumatism, rubbed a table spoonful of a saturated solution of tart. emet. in water into his knee and thigh ; this he continued to do every night, for a week, without its once nauseating, or sweating him. He thought the medicine purged him slightly the second morning after he commenced the use of it ; this effect was not observed at any other time during the whole course. The complaint of this patient was not relieved by this remedy.

Catharine G—— was troubled with rheumatism and a swelling of her stomach ; I ordered her to rub a table spoonful of a saturated solution of tart. emet. in water on her thigh and stomach ; this was done the first night ; the next day I requested her to use two table spoonfuls, this she continued to use every evening, for four or six times. This woman was several times ruptured ; she perspired, though not when the medicine could have produced it, but

when she was rubbing herself, which was always done before a warm stove ; an eruption appeared, not over the whole body, but merely on those parts where she used the friction, which I attributed to the mechanical irritation produced on the tender skin of the thigh by some undissolved particle of tart. emet.

Molly C——, subject to a chronic head-ache and some uneasiness at her stomach, rubbed a table-spoonful of the same solution over her abdomen every evening for five or six days, without observing any of the effects ascribed to this medicine.

Mr. Sherwen inculcates the above as a good mode of administering antimonials, when we wish them to act on the general system, and not particularly on the alimentary canal. That a long and continued use of tart. emet. in this way would materially affect the system, I have no manner of doubt ; but of operations produced by a single or several doses, the reader will judge from the above experiments.

In cases of abstinence from aliment and drink, where great thirst occurs, relief may be afforded almost immediately by immersing the patient in warm water. Sailors frequently experience the happiest effects from bathing, when they are in want of water. It is on the principle of absorption from the skin, that the inoculation of the small-pox is founded ; this discovery has afforded more happiness to mankind than any made since the time of Harvey, and is alone

sufficient to make us contemplate with pleasure, the advantages that may be derived from operations produced on the general system through this channel.

The nervous consent existing between the skin and general system, is by no means small, as is observable from the action of some substances when applied to this part. I have seen a leaf of tobacco applied to the cheek of a person not accustomed to the use of this plant, produce violent vomiting, and purging, and general effects so powerful as nearly to induce syncope.

Opiates may be employed with evident benefit in this way, as I have frequently observed where opium made into a plaster with a little conserve of roses has been applied to the pit of the stomach, in spasms of that organ, cholera infantum, and vomitings ; it relieves the uneasiness at the stomach, and has a tendency to check the diarrhoea.

One dram of finely powdered opium made into a paste with liquid laudanum, and applied to the pit of the stomach of an adult, produced effects so strong, that the subject, a woman of a habit rather delicate, was unable to keep out of bed.

Volat. alkali applied to the temples and internal membrane of the nose in syncope, furnishes another proof of the sudden and powerful operations that may be produced on the system, by the application

of different medicines to the surface; blisters, finapisms, caustics, &c. all act in part by means of a sympathetic connection.

THE END.

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